

Docket No.: M4065.0826/P826

(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Scott Campbell

Application No.: 10/053,110

Group Art Unit: 2851

Filed: October 26, 2001

Examiner: Not Known

For: WIDE DYNAMIC RANGE OPERATION

FOR CMOS SENSOR WITH FREEZE-

FRAME SHUTTER

REVOCATION OF POWER OF ATTORNEY AND NEW POWER OF ATTORNEY

Commissioner for Patents Washington, DC 20231

Dear Sir:

The undersigned, a duly authorized representative of Micron Technology, Inc. and current assignee of this application as demonstrated by the attached copy of the assignment, recorded at reel/frame 012745/0385 hereby revokes all Powers of Attorney previously dated October 26, 2001 and filed October 26, 2001, and hereby appoints the following attorneys and/or agents to prosecute this application and transact all business in the U.S. Patent and Trademark Office connected herewith:

Gary M. Hoffman	26,411	Ryan H. Flax	48,141	Ellen S. Tao	43,383
Thomas J. D'Amico	28,371	Richard LaCava	41,135	Gary L. Veron	39,057
Donald A. Gregory	28,954	John C. Luce	34,378	Steven I. Weisburd	27,409
James W. Brady, Jr.	32,115	Peter McGee	35,947	Peter Zura	48,196
Jon D. Grossman	32,699	Edward A. Meilman	24,735	Jeremy A. Cubert	40,399
Mark J. Thronson	33,082			Gianni Minutoli	41,198
Eric Oliver	35,307	William E. Powell, III	39,803	Michael Bergman	42,318
Laurence E. Fisher	37,131	Steven S. Rubin	43,063	Salvatore P. Tamburo	45,153

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Application No.: 10/053,110 Docket No.: M4065.0826/P826

Gabriela I. Coman 50,515 Stephen A. Soffen 31,063 Christopher S. Chow 46,493

Catherine A. Ferguson 40,877 Christopher M. Tanner 41,518

All attorneys of the law firm Dickstein Shapiro Morin & Oshinsky LLP and also, listed as follows:

Charles B. Brantley, III 38,086 Kevin D. Martin 37,882 Russell Slifer 39,838

Michael L. Lynch 30,871 David J. Paul 34,692

attorneys/agents of Micron Technology, Inc. as its attorneys with full power of substitution to prosecute this application and to transact all business in the Patent and Trademark Office in connection therewith.

Address all communications to:

Thomas J. D'Amico DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP 2101 L Street NW Washington, DC 20037-1526 (202) 785-9700

For: Micron Technology, Inc.

Dated: 1-22-03

Michael L. Lynch

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Commissioner for Trademarks Arlington, VA 22202-3513 www.uspto.gov

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THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, ASSIGNMENT DIVISION, BOX ASSIGNMENTS, CG-4, 1213 JEFFERSON DAVIS HWY, SUITE 320, WASHINGTON, D.C. 20231.

RECORDATION DATE: 03/29/2002

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BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAFLS).

ASSIGNOR:

PHOTOBIT CORPORATION

DOC DATE: 11/21/2001

ASSIGNEE:

MICRON TECHNOLOGY, INC. 8000 S. FEDERAL WAY BOISE, IDAHO 83706-9632

SERIAL NUMBER: 09025079

PATENT NUMBER:

FILING DATE: 02/17/1998

ISSUE DATE:

SERIAL NUMBER: 09031145

FILING DATE: 02/26/1998 ISSUE DATE:

PATENT NUMBER:

SERIAL NUMBER: 09038888

FILING DATE: 03/11/1998

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SERIAL NUMBER: 09183389 FILING DATE: 10/29/1998

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FILING DATE: 12/09/1998 SERIAL NUMBER: 09209982

ISSUE DATE: PATENT NUMBER:

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ISSUE DATE: PATENT NUMBER:

SERIAL NUMBER: 09250623 FILING DATE: 02/16/1999

ISSUE DATE: PATENT NUMBER:

FILING DATE: 02/18/1999 SERIAL NUMBER: 09251758 ISSUE DATE: 04/02/2002

PATENT NUMBER: 6365886

FILING DATE: 02/18/1999 SERIAL NUMBER: 09252428 ISSUE DATE: 05/14/2002 PATENT NUMBER: 6388241

SERIAL NUMBER: 09264501 FILING DATE: 03/08/1999

ISSUE DATE: PATENT NUMBER:

FILING DATE: 03/12/1999 SERIAL NUMBER: 09267503

ISSUE DATE: PATENT NUMBER:

FILING DATE: 03/23/1999 SERIAL NUMBER: 09274739

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FILING DATE: 03/30/1999 SERIAL NUMBER: 09281358

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FILING DATE: 06/17/1999 SERIAL NUMBER: 09284765 TSSUE DATE: 06/19/2001

PATENT NUMBER: 6247873

FILING DATE: 04/23/1999 SERIAL NUMBER: 09298306

ISSUE DATE: PATENT NUMBER:

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SERIAL NUMBER: 09360294 FILING DATE: 07/22/1999
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SERIAL NUMBER: 09418961 FILING DATE: 10/14/1999 PATENT NUMBER: 6388242 FILING DATE: 05/14/2002

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SERIAL NUMBER: 09442871 FILING DATE: 11/18/1999

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SERIAL NUMBER: 09516433 FILING DATE: 03/01/2000 PATENT NUMBER: 6388243 ISSUE DATE: 05/14/2002

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ISSUE DATE: 05/29/2001

JEFFREY OLSEN, EXAMINER ASSIGNMENT DIVISION OFFICE OF PUBLIC RECORDS

PATENT NUMBER: 6239456

04-11-2002

RECC



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Commissioner for Paterius. Please record the attached original documents	3/1/(3/ of cop)/(cs).		
Name of conveying party(ies):	2. Name and address of receiving party(ies): Micron Technology, Inc. 8000 S. Federal Way Boise ID 83706-9632		
1. Name of conveying party(les): Photobit Corporation 3-29-52	Micron Technology, Inc. 8000 S. Federal Way Boise ID 83706-9632		
135 North Los Robles Avenue, 7th Floor	Micron Technology, Inc. 8000 S. Federal Way		
Pasadena, California 91101	Boise ID 83706-9632		
Additional name(s) attached? ☐ Yes 図 No			
3. Nature of conveyance:	ES RECORCE		
☑ Assignment			
☐ Merger	FION		
☐ Security Agreement ☐ Change of Name	-		
□ Other:	7.3		
Execution Date: November 21, 2001	Additional names/addresses attached? ☐ Yes ☒ No		
4. Application number(s) or patent number(s):			
If this document is being filed with a new application, the execution	n date of the application is:		
A. Patent Application No(s).:	B: Patent No(s).:		
SEE SCHEDULE A ATTACHED	SEE SCHEDULE B ATTACHED		
Additional numbers a	ttached? ☐ Yes 図 No		
Name/address of party to whom correspondence concerning document should be mailed:	6. Total number of applications/patents involved: 107		
PTO CUSTOMER NO 20985	7. Total fee (37 CFR §3.41): \$4280		
	国 Enclosed		
SCOTT C. HARRIS	☐ Authorized to charge Deposit Account.		
Fish & Richardson P.C.	8. Deposit Account No.: 06-1050		
4350 La Jolla Village Drive, Suite 500	Please apply any additional charges, or any credits, to our		
San Diego, California 92122	Deposit Account No. 06-1050.		
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9. Statement and Signature: To the best of my knowledge and	d belief, the foregoing information is true and correct and		
any attached copy is a true copy of the original documer	∩t.		
Sauth C. Marria	/ / >		
Scott C. Harris Reg. No. 32,030	3/20/02		
Name of Person Signing Signature	Date /		
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CERTIFICATE OF MAILING BY FIRST CLASS MAIL

I hereby certify under 37 CFR §1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated below and is addressed to the Commissioner of Patents, Washington, D.C. 20231.

Tere Halligan

Typed Name of Person Signing Certificate

SCHEDULE A

Doolee Ale	Filing Date	Serial No.
Docket No.	2/17/1998	09/025,079
08305/017001	2/26/1998	09/025,075
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SCHEDULE B

Docket No.	Filing Date	Serial No.	Issue Date	Patent No.
08305/003001	9/30/1996	08/723,897	11/30/1999	5,995,163
08305/014001	10/6/1997	08/944,794	12/21/1999	6,005,619
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08305/045001	8/19/1999	09/378,565	5/29/2001	6,239,456

ASSIGNMENT OF PATENTS

This ASSIGNMENT OF PATENTS (this "Assignment of Patents"), dated as of November 21, 2001, is entered into by and among Micron Technology, Inc., a Delaware corporation ("Buyer"), Photobit Corporation, a Delaware corporation ("Parent"; Parent is sometimes referred to herein as a "Seller") and Photobit Technology Corporation, a Delaware corporation and a wholly owned subsidiary of Seller ("Subsidiary"; Parent and Subsidiary are sometimes referred to herein as a "Seller" and sometimes collectively as the "Sellers").

This Assignment of Patents is entered into pursuant to Section 6.23 of the Asset Purchase Agreement dated as of November 21, 2001, (the "Asset Purchase Agreement;" capitalized terms used herein but not otherwise defined herein shall have the same meanings assigned to them in the Asset Purchase Agreement), by and among Parent, Subsidiary, Buyer, Dr. Sabrina Kemeny, Dr. Eric Fossum, Robert Panicacci and the Seller Representative.

Pursuant to the Asset Purchase Agreement, Sellers agreed, among other things, to transfer to Buyer all of Sellers' right, title and interest in and to the Acquired Assets, in exchange for the payment by Buyer of the Purchase Price and the assumption by Buyer of the Assumed Liabilities, in each case on the terms and subject to the conditions provided in the Asset Purchase Agreement.

- 1. Assignment of Patents by Sellers. Sellers hereby irrevocably and formally grant, bargain, sell, transfer, convey, assign and deliver to Buyer all right, title and interest in and to the patents, patent applications and provisional applications owned by each Seller throughout the world, together with any and all rights of such Seller associated with inventions claimed therein and/or with the applications and patents, whether or not such patents are registered with the United States Patent and Trademark Office or other comparable governmental authority of any foreign jurisdiction (including, without limitation, those patents and applications set forth on Exhibit A hereto) (the "Assigned Patents"), free and clear of all encumbrances, together with all causes of action and other rights to sue for and remedies against past, present and future infringements of any of the foregoing, together with the right to collect damages therefore, and rights of priority and protection of interests therein under the laws of any jurisdiction worldwide and all tangible embodiments thereof, to have and to hold the same unto Buyer, its successors and assigns, for and during the existence of such rights and all renewals thereof.
- 2. Further Assurances. Each Seller hereby covenants and agrees that from time to time and at the expense of such Seller and without further consideration, upon request of Buyer, each Seller shall and shall cause each of its affiliates to execute and deliver such instruments and documents, and take such further actions, as Buyer reasonably may request in order to sell, convey, transfer and assign to Buyer, or to record Buyer's interest in or title to, any of the Assigned Patents.
- 3. <u>Power of Attorney</u>. Each Seller hereby constitutes and appoints Buyer as such Seller's true and lawful attorney in fact, with full power of substitution in such Seller's name and

stead, to take any and all steps, including proceedings at law, in equity or otherwise, to execute, acknowledge and deliver any and all instruments and assurances necessary or expedient in order to vest or perfect the aforesaid rights and causes of action more effectively in Buyer or to protect the same or to enforce any claim or right of any kind with respect thereto. Each Seller hereby declares that the foregoing power is coupled with an interest and as such is irrevocable.

- 4. <u>Successors and Assigns</u>. This Assignment of Patents shall be enforceable against the successors and assigns of Sellers and shall inure to the benefit of the successors and assigns of Buyer.
- 5. Governing Law. This Assignment of Patents shall be governed by and construed in accordance with the laws of the United States, in respect to patent issues and in all other respects, including as to validity, interpretation and effect, by the internal laws of the State of California, without giving effect to the conflict of laws rules thereof.

IN WITNESS WHEREOF, this Assignment of Patents has been duly executed and delivered as of the date first written above.

micron technology, inc.
By: 2 S. Soves!
Printed Name: W.G. SHOVER, JR.
Title: VICE PRESIDENT OF FINANCES AND CA
•
PHOTOBIT CORPORATION
Ву:
Printed Name:
Title:
PHOTOBIT TECHNOLOGY CORPORATION
Ву:
Printed Name:
Title:

IN WITNESS WHEREOF, this Assignment of Patents has been duly executed and delivered as of the date first written above.

ACKNOWLEDGMENT - PHOTOBIT CORPORATION

STATE OF CALIFORNIA)
) SS:
COUNTY OF SAN FRANCISCO)

I, Teresa Solis, a Notary Public in and for said County, in the State aforesaid, DO HEREBY CERTIFY that Sabrina Kemeny, appeared before me this day in person, and acknowledged that she executed and delivered the Instrument of Assignment of Patents above as her free and voluntary act and in her representative capacity for Photobit Corporation, a Delaware corporation, acting in its representative capacity as the Chairman and CEO of Photobit Corporation., a Delaware corporation, for the uses and purposes herein set forth.

IN WITNESS WHEREOF, I have hereunto my hand and notarial seal this 21st day of November 2001.

TERESA SOLIS COMM. & 1237290 NOTARY PUBLIC-CALIFORNIA 🖳 City & County of San Francisco () COMM. EXP. OCT. 22, 2003

My Commission Expires: October 22, 2003

ACKNOWLEDGMENT- PHOTOBIT TECHNOLOGY CORPORATION

STATE OF CALIFORNIA)
) SS:
COUNTY OF SAN FRANCISCO)

I, Teresa Solis, a Notary Public in and for said County, in the State aforesaid, DO HEREBY CERTIFY that Sabrina Kemeny, appeared before me this day in person, and acknowledged that she executed and delivered the Instrument of Assignment of Patents above as her free and voluntary act and in her representative capacity for Photobit Technology Corporation, a Delaware corporation, acting in their representative capacity as the Chairman and CEO of Photobit Technology Corporation, a Delaware corporation, for the uses and purposes herein set forth.

IN WITNESS WHEREOF, I have hereunto my hand and notarial seal this 21st day of November 2001.

My Commission Expires: October 22, 2003

COMM. Ø 1237290 NOTARY PUBLIC-CALIFORNIA City & County of San Francisco ()

TERESA SOLIS

COMM. EXP. OCT. 22, 2003

<u>EXHIBIT A</u>

Photobit Patents Issued and Pending Applications.

	Photobit Patent or Provisional Application Title	Description/Comments	PB NTR#
	PATENTS ISSUED		
1	Median Filter With Embedded Analog to Digital Converter	Patent #5,995,163	9601
2	Low-Voltage Common Source Switched-Capacitor Amplifier	Patent #6,049,247	9702
3	Quantum Efficiency Improvements in Active Pixel Sensors	Patent #6,005,619	9704
4	Bidirectional Follower for Driving a Capacitive Load	Patent #6,043,690	9719
5	Analog-to-Digital Conversion	Patent #6,087,970	9603
6	Low-Voltage Comparator with Wide Input Voltage Swing	Patent #6,147,519	9703
7	Programmable Analog Arithmetic Circuit for Imaging Sensor	Patent #6,166,367	9706
8	Correction of Missing Codes Nonlinearity in A to D Converters	Patent #6,255,970	9708
9	Charge-Domain Analog Readout for an Image Sensor	Patent #6,222,175	9712
10	A/D Converter Correction Scheme	Patent #6,191,714	9713
11	Active Pixel Sensor With Current Mode Readout	Patent #6,194,696	9714
12	Differential Non-Linearity Correction Scheme	Patent #6,215,428	9716
13	CMOS Image Sensor with Different Pixel Sizes for Different Colors	Patent #6,137,100	9718
14	Pulse-Controlled Light Emitting Diode Source	Patent #6,222,172	9801
15	CMOS Voltage Comparator Capable of Operating With Small Input Voltage Difference	Patent #6,184,721	9809
16	Using Single Lookup Table To Correct Differential Non-Linearity Errors In An Array Of A/D Converters	Patent #6,211,804	9813
17	Concentric Lens with Aspheric Correction	Patent #6,097,545	9816
18	Using Cascaded Gain Stages for High-Gain and High-Speed Readout of Pixel Sensor Data	Patent #6,229,134	9817
19	Lock-In Pinned Photodiode Photo-detector	Patent #6,239,456	9822
20	Ping-Pong Readout	Patent #6,204,792	9828
21	Nonlinear Flash Analog To Digital Converter Used In Active Pixel System	Patent #6,295,013	9818 9819
	PHOTOBIT/GENTEX JOINTLY OWNED IP		
1	Wide Dynamic Range Optical Sensor	Patent #6,008,486	
2	Vehicle Vision System	Patent Application Serial No. 09/001,855	
	PATENT APPLICATIONS		
1	Dead Pixel Correction by Row/Column Substitution	Patent Application Serial No. 09/031,145	9802
2	Color Interpolation	Patent Application Serial No. 09/028,961	9804
3	Double Comparison Successive Approximation Method and Apparatus	Patent Application Serial No. 09/360,294	9701
4	Digital Exposure Circuit For An Image Sensor	Patent Application Serial No. 09/298,308	9705
5	Method and Circuit for Fast and Accurate Adjustment of Integration Time for CMOS APS Cameras	Patent Application Serial No. 09/281,765	9707
6	Smart Column Controls for High Speed Multi-Resolution Sensors	Patent Application Serial No. 09/251,758	9709
7	Increasing Readout Speed in CMOS APS Sensors through Block Readout	Patent Application Serial No. 09/274,739	9710
8	Active Pixel Color Linear Sensor With Line-Packed Pixel Readout	Patent Application Serial No. 09/252,428	9711
9	Three Sided Buttable CMOS Image Chip	Patent Application Serial No. 09/211,718	9715

Photobit Patent or Provisional Application Title Photodiode-Type Pixel For Global Electronic Shutter And Reduced Lag Wide Dynamic Range Fusion Using External Memory Look-Up Active Pixel Sensor With Mixed Analog and Digital Signal Integration Look Ahead Shutter Pointer Allowing Real Time Exposure Control Readout Circuit With Gain and Analog-to-Digital Conversion For Image Sensor Using A Single Control Line To Provide Select And Reset Signals In Two Rows Of A Digital Imaging Device	Patent Application Serial No. 09/025,079 Patent Application Serial No. 09/299,066 Patent Application Serial No. 09/183,389 Patent Application Serial No. 09/038,888 Patent Application Serial No. 09/264,501	9717 9720 9721 9802
12 Active Pixel Sensor With Mixed Analog and Digital Signal Integration 13 Look Ahead Shutter Pointer Allowing Real Time Exposure Control 14 Readout Circuit With Gain and Analog-to-Digital Conversion For Image Sensor 15 Using A Single Control Line To Provide Select And Reset Signals In Two Rows Of A Digital	Serial No. 09/299,066 Patent Application Serial No. 09/183,389 Patent Application Serial No. 09/038,888 Patent Application	9721
13 Look Ahead Shutter Pointer Allowing Real Time Exposure Control 14 Readout Circuit With Gain and Analog-to-Digital Conversion For Image Sensor 15 Using A Single Control Line To Provide Select And Reset Signals In Two Rows Of A Digital:	Senal No. 09/183,389 Patent Application Senal No. 09/038,888 Patent Application	
14 Readout Circuit With Gain and Analog-to-Digital Conversion For Image Sensor 15 Using A Single Control Line To Provide Select And Reset Signals In Two Rows Of A Digital	Serial No. 09/038,888 Patent Application	9802
Using A Single Control Line To Provide Select And Reset Signals In Two Rows Of A Digital		1
		9803
	Patent Application Serial No. 09/250,623	9804
16 High Resolution CMOS Circuit Using a Matched Impedance Output Transmission Line	Patent Application Serial No. 09/359,056	9806
17 Reducing Internal Bus Speed in a Bus System Without Reducing Readout Rate	Patent Application Serial No. 09/359,068	9807
18 RAM Line Storage for Fixed Pattern Noise Correction	Patent Application Serial No. 09/066,506	9808
19 Latched Row Logic for a Rolling Exposure Snap	Patent Application Serial No. 09/261,361	9810 9812
20 Analog To Digital Converter with Internal Data Storage	Patent Application Serial No. 09/281,358	9811
21 Low Light Sensor Signal to Noise Improvement	Patent Application Serial No. 09/359,065	9814
Nonlinear Flash Analog to Digital Converter Used in Active Pixel System	Patent Application Serial No. 09/161,355	9818 9819
23 Oversampled Centroid A to D Converter	Patent Application Serial No. 09/430,625	9820
Over Sampled CMOS Image Sensor	Patent Application Serial No. 09/429,776	9821
25 Pinned Floating Photoreceptor With Active Pixel Sensor	Patent Application Serial No. 09/397,381	9823
Oversampled CMOS Image Sensor	Patent Application Serial No. 09/430,734	9824 9825
Optical Range Finder	Patent Application Serial No. 09/429,882 Patent Application	9826
Color Correction of Multiple Colors Using A Calibrated Technique Micro Power Micro-Sized CMOS Active Pixel	Serial No. 09/209,982 Patent Application	9827
28 Micro Power Micro-Sized CMOS Active Pixel 30 ALow Power Signal Chain for Image Sensors CMOS APS	Serial No. 09/418,961 Patent Application	9829
31 Matched Color CMOS Sensor	Serial No. 09/590,785 Patent Application	9831
32 Clear Plastic Packaging in a CMOS Active Pixel Image	Serial No. 09/267,503 Patent	9832
	Application Serial No. 09/442,871	
Semiconductor Imaging Sensor Array Devices With Dual-Port Digital Readout for CMOS Image Sensor	Patent Application Serial No. 09/449,194	9833
34 High-Speed Sampling Of Signals In Active Pixel Sensors	Patent Application Serial No. 09/527,422	9834
35 Multi-Chip Addressing For The I ² C Bus	Patent Application Serial No. 09/459,720	9835
36 Circuits larger than the max. Reticle size in deep sub micron process	Patent Application Serial No. 09/523,127	9836
37 Compensation for Optical Distortion at Imaging Plane	Patent Application Serial No. 09/354,930	9837

	Photobit Patent or Provisional Application Title	Description/Comments	PB NTR #
38	Contoured Surface of Image Plane Array Cover Plate	Patent Application Serial No. 09/470,284	9839
39	Backside Illumination of CMOS Image Sensor	Patent Application Serial No. 09/483,362	9901
40	A Technique For Flagging Oversaturated Pixels	Patent Application Senal No. 09/505,645	9902
41	Diagonalized Image Sensor Pixels For Improved Effective Performance	Patent Application Serial No. 09/507,565	9903
42	Active Pixel Sensor With Fully-Depleted Buried Photoreceptor	Patent Application Serial No. 09/516,433	9904
43	An Analog Solution for Oversaturated Pixel Problem	Patent Application Serial No. 09/522,287	9905
44	Superposed Multi-Junction Color APS	Patent Application Serial No. 09/522,286	9906
45	Multi Junction APS with Dual Simultaneous Integration	Patent Application Serial No. 09/519,930	9907
46	A Novel Idea for a New Readout Structure of APS	Patent Application Serial No. 09/595,592	9908 9909 9910
47	Increasing Pixel Conversion Gain In CMOS Image Sensors	Patent Application Serial No. 09/553,980	9912
48	Dual Sensitivity Image Sensor	Patent Application Serial No. 09/596,757	9915
49	Layout Technique For Semiconductor Processing Using Stitching	Patent Application Serial No. 09/687,266	9916 9917
50	Active Pixel Sensor with Reduced Fixed Pattern Noise	Patent Application Serial No. 09/550,816	9918
51	Low Voltage Analog-To-Digital Converters With Internal Reference Voltage and Offset	Patent Application Serial No. 09/538,043	9922
52	Techniques to Increase Signal Dynamic Range in CMOS APS	Patent Application Serial No. 09/653,527	9923
53	Low Power Analog-To-Digital Conversion	Patent Application Serial No. 09/528,310	9926
54	Calibration Circuit for Successive Approximation ADC.	Patent Application Serial No. 09/746,565	9927
55	P-Type Reset/Readout Circuitry for Radiation Hard APS	Patent Application Serial No. 09/648,403	9929
56	Novel Lenses Using Coherent Optical Fiber Bundles	Patent Application Serial No. 09/745,854	9931
57	Dynamic Histogram Equalifization for High Dynamic Range Images	Patent Application Serial No. 09/778,151	9933
58	Compact Realization of 2-Reset Pointer Rolling Shutter in CMOS Sensor	Patent Application Serial No. 09/776,400	9935
59	Testing Of Solid-State Image Sensors	Patent Application Senal No. 09/692,742	9941
60	Adjustable Color-Plane-Pixel Integration Times for Asynchronous Pixel Saturation Avoidance	Patent Application Serial No. 09/761,868	9943
61	Improved Method for Flushed Reset	Patent Application Serial No. 09/858,748	9944
62	A New Frame-Shutter Pixel Structure with an Isolated Storage Node	Patent Application Serial No. 09/792,634	9945
63	Frame-Shuttering Scheme For Increased Frame Rate	Patent Application Serial No. 09/792,292	9946
64	Shared Photodetector Active Pixel	Patent Application Serial No. 09/881,639	9948
65	An Optimal Layout Technique for Row/Column Decoders to Reduce Number of Blocks	Patent Application Serial No. 09/860,031	9950
66	Microlenses With Spacking Elements To Increase An Effective Use of Substrate	Patent Application Serial No. 09/859,224	2004 2006
67	Pixel Optimization for Color	Patent Application Serial No. 09/922,507	2009

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	Photobit Patent or Provisional Application Title	Description/Comments	PB NTR #
68	Image Sensing System With Histogram Modification	Patent Application Serial No. 09/761,218	2012
69	Image Sensor Having Boostted Reset	Patent Application	2014
		Serial No. 09/917,195 Provisional Patent	2015
70	A High-Speed Analog-To-Digital Converter Using Multiple Staggered Successive	Application	2016
	Approximation Cells	Serial No. 60/243,324	·
71	White Spot Reduction For CMOS Imaging	Provisional Patent	2017
		Application	
		Serial No. 60/243,328	2019
72	New Architecture For High-Speed ADC Using Multiple Successive Approximation Cells	Provisional Patent Application	2018
		Serial No. 60/253,430	
73	CMOS Sensor With Dual Column Parallel Analog-To-Digital Converters	Provisional Patent	2020
. •		Application	
	400	Serial No. 60/313,117 Provisional Patent	2021
74	Reference Voltage Circuit For Differential Analog-To-digital Converter (ADC)	Application	2021
		Serial No. 60/247,401	
75	Pseudo Random Assignment To Remove FPN Of High-Speed ADC Using Multiple	Provisional Patent	2022
	Successive Approximation Cells	Application	
		Serial No. 60/306,753	2024
76	Frame-Scale Package	Provisional Patent Application	2024
		Serial No. 60/245,085	
77	Black-Level Compensation With On-Chip successive Approximation ADC	Provisional Patent	2025
• •	diad. Estat San	Application	
		Serial No. 60/244,412	2026
78	An improved Frame Shutter For CMOS APS	Provisional Patent Application	2026
		Serial No. 60/243,899	İ
79	Wide Dynamic Range Operation For CMOS Sensor With Freeze-Frame Shutter	Provisional Patent	2027
, ,	The Synamor and Special Control of the Specia	Application	
		Serial No. 60/243,898	2028
80	Freeze-Frame Shutter Imager With Increased Dynamic Range	Provisional Patent Application	2020
		Serial No. 60/242,215	
81	Power Optimization For Class A Amplifier With Variable Signal Gain By matching Of Unity	Provisional Patent	2029
	Gain Bandwidth To the Demanded Gain	Application	İ
		Serial No. 60/285,431 Provisional Patent	2030
82	Dynamic Range Extension In Color CMOS Active Pixel Sensors	Application	2000
		Serial No. 60/259,352	
83	Reducing Power Consumption And Noise In CMOS APS Sensor Through Block Read-Out	Patent Application	2031
		Serial No. 09/901,280	2102
84	Reducing KTC Noise In 3T and 5T CMOS APS	Provisional Patent Application	2102
		Serial No. 60/281,603	
85	Reference Voltage Stabilization In CMOS Sensors	Patent Application	2109
		Filed 10/12/01 Serial No.	
		pending Percent	2110
86	Low Power Differential Charge Mode Readout Circuit, Pipelined Gain Stage, And Pipelined	Provisional Patent Application	1
	ADC For CMOS Active Pixel Sensors	Serial No. 60/280,589	
87	A New Row Driver Circuit For CMOS APS Using Shared Row-Reset Pixels And Charge	Patent Application	2111
	Pump Boosting Circuit	Serial No. 09/876,848	
88	Temperature Sensor Using The Image Read-Out Signal Chain Of An Active Pixel Image Sensor Having Double Sampling Of A Pixel Reset Voltage And A Pixel Image Voltage Level	Provisional Patent Application	2112
88	Secret Having Double Sampling Of A Pixel Reset Voltage And A Pixel Image Voltage Level I		ŀ
88	Sensor Flaving Double Campang Cr A Fixor Cook Vollage Vine 11 Mer and get 1	Serial No. 60/306./18	1
		Serial No. 60/306,718 Provisional Patent	2113
	Method For Optimizing Microlens/CFA/Pixel Cooperative Performance In Image Sensors	Provisional Patent Application	2113
		Provisional Patent Application Serial No. 60/286,908	
		Provisional Patent Application Serial No. 60/286,908 Provisional Patent	2113
89	Method For Optimizing Microlens/CFA/Pixel Cooperative Performance In Image Sensors	Provisional Patent Application Serial No. 60/286,908 Provisional Patent Application	
89 90	Method For Optimizing Microlens/CFA/Pixel Cooperative Performance In Image Sensors On-Chip ADC Test for Image Sensors	Provisional Patent Application Serial No. 60/286,908 Provisional Patent	
89	Method For Optimizing Microlens/CFA/Pixel Cooperative Performance In Image Sensors On-Chip ADC Test for Image Sensors Variable Pixel Clock Electronic Shutter Control Algorithm For Corruption-Free Image	Provisional Patent Application Serial No. 60/286,908 Provisional Patent Application Serial No. 60/313,122	2115
	Method For Optimizing Microlens/CFA/Pixel Cooperative Performance In Image Sensors On-Chip ADC Test for Image Sensors	Provisional Patent Application Serial No. 60/286,908 Provisional Patent Application Serial No. 60/313,122 Provisional Patent	2115

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	Photobit Patent or Provisional Application Title	Description/Comments	PB NTR#
-		Serial No. 60/607,514	
93	Flexy-Power Amplifier. A New Amplifier With Built-In Power Management	Provisional Patent Application Serial No. 60/307,513	2120

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